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Trauma from Adverse Childhood Experiences (ACEs) which include neglect, abuse, and household dysfunction increase the risk of depressive symptoms 2.5- to 3.6-fold and suicidal attempts 2- to 5-fold. The most recent theoretical model of suicidal progression, Three-Step Theory, postulates psychological distress (such as trauma from ACEs), leads to hopelessness (a depressive symptom), and subsequently to suicidal ideation and suicidal attempts. However, no person-centered model of ACEs and their link to hopelessness and later suicidal behavior has been conducted amongst African American or adolescent populations. Therefore, the first goal of this study was to test the validity of the Three-Step Theory of Suicide by creating the first person-centered model of the ACEs to suicidal behavior association in an African American adolescent sample using a latent class analysis. The second goal was to explore the potential moderating effect of a protective factor (religious participation) on the Three-Step Model for this demographic which was unknown. Religious participation, a common practice within the African American community, was predicted to provide an alternative method for coping with traumatic experiences like ACEs by mitigating the use of the maladaptive coping following hopelessness. African American adolescents (N=705) aged 14 to 18 years were extracted from the 2015 Dane County Youth Assessment. A latent class analysis revealed three typologies, a Low ACES class, a Neglect ACES class, and a High ACES class. Results validated the use of the Three-Step Model for the sample demographic.

Hopelessness fully mediated the Neglect ACES class associations with suicidal ideation and suicide attempts. However, hopelessness partially mediated the High ACES class associations with suicidal ideation and suicide attempts. The second hypothesis was not supported such that the Three-Step Model was not moderated by religious participation. Mediation results suggested Neglect may be a less severe form of ACEs for African American youth such that its relationship to suicidal behavior is fully mediated by hopelessness. However, experiences of multiple ACEs especially physical abuse or family chaos may place African American youth at higher risk for suicidal behavior, above and beyond hopelessness. These findings suggest that the Three-Step model explains the association between moderate- and/or low- intensity ACEs and suicidal behavior. However, hopelessness and other factors contribute to the association between abuse- and family chaos- related ACEs, and suicidal behavior. These results suggest that African American youth may benefit from trauma and suicidal behavior screeners that reflect severity categories for types of ACEs in addition to number of ACEs. Finally, African American youth who are at risk for neglect may need to be routinely screened for hopelessness.

THE IMPACT OF ADVERSE CHILDHOOD EXPERIENCES ON SUICIDAL IDEATION AND ATTEMPTS IN AFRICAN AMERICAN ADOLESCENTS: EXAMINING THE MODERATION EFFECT OF RELIGIOUS ACTIVITY ON THE PROGRESSION OF SUICIDE

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CHAPTER I

INTRODUCTION

Adolescent Suicide in the United States

In the United States, suicide is the second leading cause of death for adolescents and emerging adults aged 15-29 (World Health Organization [WHO], 2017; National Center for Injury Prevention and Control - CDC, 2018). The Centers for Disease Control and Prevention (CDC, 2017) reported that in 2015 the suicide rate for youth aged 15-19 years old increased 31% for males and doubled for females from 2007. For every 10 completed suicides, there are at least twice as many reported suicide attempts. However, the full number of attempts remains unknown due to high levels of underreporting (Van Orden et al., 2010; World Health Organization [WHO], 2014; WHO, 2017). Moreover, over the past twenty years suicidal behavior amongst African American youth has risen (Lindsey, et al., 2019; Farrell, et al., 2015). A recent report on the trends of adolescent suicidal behavior by ethnicity in the United States found African American youth increased in suicide attempts while all other ethnic groups decreased (Lindsey, et al., 2019). Both African American males and females increased in suicide attempts, however males also increased in injuries from attempts. These findings suggest that over time African American males engaged in increasingly lethal suicidal means.

Suicide is most often the result of multiple converging factors, making predicting and treating persons at highest risk a difficult task (National Center for Injury Prevention

and Control - CDC, 2018; Mann, et al., 1999). Yet, these factors were found to align across predictable trajectories of risk, making it possible to study a developmental progression towards suicidal behaviors (i.e., thoughts, attempts, completion) (National Research Council, 2014). In particular, research suggests that childhood experiences of trauma and depressive symptoms are strongly linked with later suicidal behavior (Brown, et al., 1999; Oquendo, et al., 2003; Oquendo, et al., 2005). Experiences of trauma like abuse during early childhood, for example, were associated with a six times greater likelihood of suicidal behavior during adulthood (Brent, et al., 2002). Similarly, depressive episodes during adolescence have shown strong correlations to increased suicidal behavior expression during adulthood. In fact, the risk for later suicidal attempts was found to increase as the age of depressive episode onset decreased meaning adults were more likely to engage in suicidal attempts after experiencing a depressive episode in childhood (Harrington, et al., 1994). However, one large gap in this literature stems from the lack of person-centered studies that track the outcome of these associations for minority populations in the United States. Therefore, this study seeks to bridge that gap by testing the ACEs to suicidal behavior pathway through a person-centered model focusing on a highly vulnerable minority group in the U.S.

Adverse Childhood Experiences

The examination of adverse childhood experiences came out of the study of child abuse and neglect in the 1960's. In the late 1990's the CDC and Kaiser Permanente collected retrospective accounts of healthcare recipient's traumatic experiences during childhood (Mersky, et al., 2013). This original ACEs study helped transition the field of

child maltreatment to a larger discussion about the impact of various types of interpersonal and environment-related traumatic experiences. The major findings of that study showed patient mortality, including physiological- and psychological- morbidity to be significantly increased after reporting ACEs (Lê-Scherban, et al., 2018). Moreover, long-term negative physiological, psychological, and economic risk factors following ACE exposure, such as developmental disruption, risk behaviors, and healthcare use showed a dose-response relationship with reports of abuse, household dysfunction, and interpersonal violence (Anda, Brown, Dube, et al., 2008; Anda, Brown, Felitti, et al., 2008).

This groundbreaking study prompted a multitude of follow-up studies that have worked to refine the types of experiences that constitute trauma, understand the strength of trauma to health outcomes, prevalence rates of trauma, and the differences in these relationships by factors such as race, income-level, and age classification (Kalmakis & Chandler, 2014; Finkelhor, et al., 2009; Finkelhor, et al., 2013; Wade, et al., 2014). The original definition of ACEs included child abuse, interpersonal violence, and home dysfunction. Interpersonal violence was defined as physical abuse, emotional abuse, sexual abuse, psychological/emotional abuse or neglect, physical neglect, and parental violence toward each other. Home dysfunction was defined as parental divorce, and parent separation due to incarceration or living with a parent with mental illness. (The definition of child abuse is given below.) Of note, multiple studies have used the term "ACE" interchangeably with child maltreatment and childhood trauma (Kalmakis & Chandler, 2015), however the term ACEs will be used throughout this paper to describe

the traumatic childhood events discussed in the original ACE study by the Kaiser Permanente group and the CDC.

ACEs Categories

Today adverse childhood experiences are best defined as psychosocial stressors that produce trauma experienced during childhood and have significant impact on later health and well-being (Lê-Scherban, et al., 2018). To be categorized as an ACE, the traumatic experience must occur during a person's childhood or adolescence. These experiences include a wide range of potentially maladaptive and traumatic events including child maltreatment, home violence, forced marriage, being a witness to community or individual incidences of violence, early conscription, sibling emotional or physical violence, peer violence or bullying exposure (Brown, et al., 2010). The CDC and World Health Organization defined child maltreatment as any form of abuse and/or neglect perpetrated against children under 18 years old (National Center for Injury Prevention and Control - CDC, 2019; WHO, 2019). This abuse/neglect may include physical and/or emotional mistreatment, neglect, sexual abuse, negligence, and commercial or another form of exploitation of a child from a caregiver and/or person with power over the child. The action(s) must lead to the actual or potential detriment of a minor's survival, health, well-being, development or personal dignity. Such violence affects nearly all people at every stage of development and disrupts functioning throughout society.

Childhood Abuse

In the United States, childhood physical abuse has been defined as any purposeful physical injury to a child, include kicking, biting, burning, striking and any other action that causes a child to have a physical impairment (Child Welfare Information Gateway, 2016; WHO, 2019; Norman, et al., 2012). Findings from multinational surveys showed about a quarter of all adults reported being physically abused during childhood (WHO, 2019; Dube, et al,. 2001). One key characteristic of child abuse is that much of the physical violence exerted against the child is intended for punishment (Norman, et al., 2012; Gershoff, 2002). Devries, et al., (2018) found that irrespective of the age or gender of the victim, children were most likely to experience physical violence by other members of their household. Historically, corporal punishment continued through adolescence was found to increase depressive symptoms, and suicidal ideation in adulthood (Straus & Kantor, 1994). In addition, corporal punishment in adolescence was linked to the perpetuation of intergenerational trauma and ACEs for the victim's children. More specifically, victims were more likely to engage in substance use and interpersonal violence as adults (Straus & Kantor, 1994). Generally, the type and severity of abuse will differ by the age and gender of the perpetrator. The best example of this was given by the Child Welfare Information Gateway, in a national report of childhood physical abuse statistics for 2017, which found that over 92% of maltreatment cases were perpetrated by the child's parents. The report noted that most perpetrators were female with male perpetrators not far behind at 54% and 45% respectively. A history of physical abuse ACEs was found to increase the likelihood of suicidal attempt threefold above those

without a history of abuse (Thomson, et al., 2016). Briere, et al. (2017) found that the cycle of abuse within the family likely begins with the parent's inability to positively connect with his or her child. Future studies may therefore benefit from including a focus on the effect of child maltreatment interventions on the long-term impact of ACEs in children (Baggett, 2017). Furthermore, more research is still needed to understand the differential impact of parental abuse versus household dysfunction in chronically marginalized populations. Therefore, the current study seeks to better understand whether specific types of ACEs affect the mental health of African American youth differentially.

Neglect

A poor home environment was found to affect the intensity of depressive symptoms in youth, with physical and psychological health problems continuing later in life (Papp, 2012). Debilitation from continued pain and hopelessness led to a diminished capacity to maintain healthy relationships and involvement in normal or positive activities (Papp, 2012). A chaotic home environment that results in neglect is defined as the negligence of a parent or caregiver to provide for a minor's basic survival needs. This lack of care has severe harmful effects for those reliant on the negligent caretaker, with extreme cases leading to malnutrition, cognitive delays or impairment, physical illness, mental illness and in some cases death. In the United States, neglect of a child is considered a willful act of subverted aggression against the dependent (Child Welfare Information Gateway, 2019). Parents or caregivers found guilty of child neglect can face severe consequences, including prison sentences up to 10 years, along with permanent

removal of their child(ren). Children in protective custody due to confirmed cases of parental neglect were more likely to report depressive symptoms and shame than children without a history of experiencing neglect (Bennett, et al., 2013).

Witnessing Interpersonal Violence

Often the risks for traumatic experiences like ACEs overlap, and have intergenerational consequences (Casanueva, et al., 2013; Casanueva, et al., 2014). Many times, the maladaptive coping mechanisms used by parents to handle stress are taught to children and who repeat the cycle with their children. In a longitudinal study of the effects of child abuse and domestic violence in adolescents, Moylan, et al. (2010) showed that interpersonal adverse childhood experiences like physical abuse, domestic violence, and the dual exposure of a combination of the two increased the risk for internalizing and externalizing behaviors. Externalizing behaviors problems may include delinquency or violent behaviors while internalizing behaviors may include, psychological problems like anxiety or depression (Moylan, et al., 2010; Fleck-Henderson, 2000).

Even the witnessing of abuse to another person, can be traumatizing for a youth and lead to increased internalizing and externalizing behaviors (Fleck-Henderson, 2000; National Center for Injury Prevention and Control - CDC, 2019). The risk is again increased when the victim is another family member. Of note, contextual factors were found to increase the risk of intimate partner violence and child maltreatment. Children living in homes with domestic violence and maltreatment were likely to experience high levels of community poverty, female single-parent households, and low educational attainment of parents or guardians (Fantuzzo, et al. 1997). These factors

disproportionately affected minority households (Fantuzzo & Fusco, 2007). In a longitudinal study of ACEs, one in four Black and Hispanic youth reported witnessing another person's harsh injury or murder (Schilling, et al., 2007). This rate was double that of white participants. Therefore, the current study will examine the role of witnessed interpersonal violence for African American youth.

Parental Mental Health

Parental mental health concerns constitute another household dysfunction-related ACE. Prior ACEs studies found that living in a household with a parent that experienced severe impairment from a mental health disorder during childhood significantly increased the likelihood of the youth developing a mental health disorder in youth and later adulthood (Timko, et al., 2002; Choi, et al., 2017; Mars, et al., 2012). Parental mental health includes a wide array of psychological disorders with varying developmental trajectories. Due to their high prevalence rates, some disorders have received more attention from researchers and the public. Specifically, some of these most heavily studied areas include depression, Bipolar Disorder, schizophrenic disorders, Borderline-, Narcissistic-, and Antisocial- Personality Disorders and anxiety symptoms (Dutton, et al., 2011; Backer, et al., 2017; Wilson & Crowe, 2009; Mars, et al., 2012). However, it is the severity of these disorders and lack of intervention assistance that is the factor most strongly associated with the transmission of ACEs for offspring (Birmaher, et al., 2009; Barnow, et al., 2006; Timko, et al., 2002).

Moreover, parental mental health as a whole was shown to frequently overlap with both abuse and neglect ACEs (Craig & Bromet, 2004; Birmaher, et al., 2009;

Brown, et al., 2010). For example, household chaos increased when depressive disorders were expressed by adults in homes with children. This finding suggested that parental depression is an ACE, and that the presence of parental depression contributed to presence of other forms of ACEs. Findings from these studies showed consistent links from experiences of child maltreatment to both depression and suicidal behavior in children. Therefore, this study will examine the role of parental mental illness as a predictor of child suicidal behavior.

Parental Incarceration

The original ACEs study defined parental imprisonment as having a household member who was incarcerated (Dube, et al., 2001). As of 2018, approximately 5 million (7%) of all minor children in the US experienced the incarceration of a parent (Wakefield & Wildeman, 2018). The United States currently has the highest level of incarceration in the world with African Americans experiencing the heaviest sociological burden from this mass incarceration. African American children were found most likely to have a parent in prison (Foster & Hagan, 2009; Pattillo, et al., 2004). The 2017 report by the Bureau of Justice showed over 1.4 million people were in the prison system representing 440 per 100,000 US residents with sentences of one or more years. Of this population, there were six times the number of African American men than White American men, and African American women comprised double the number of White American women.

In 2015, 44% of African American women and 32% of African American men reported having a family member incarcerated (Lee, et al., 2015). The same study found 12% of White women and 6% White men to have a family member in prison by

comparison (Lee, et al., 2015). Murray and Farrington, (2008) found that separation from a parent due to a prison sentence predicted internalization and antisocial problems throughout development. Further, these effects were observed after controlling for other adverse factors like background disadvantage and other adversities. The study suggested that a parent's imprisonment is detrimental to the psychological development of children and adolescents. Moreover, living with an incarcerated household member was shown to produce negative physical and mental health outcomes especially for African Americans who were found more likely to report poorer physical health concerns later in adulthood (Gjelsvik, et al., 2014).

Parental Substance Use

Choi, et al. (2017) found by the age of 50 over 50% of men and women in the U.S. report experiencing at least one ACE, with alcohol abuse by a parent or caretaker being the most prevalent at 26% (Dube, et al., 2001). The report showed all ACEs related abuse, neglect, parental mental health, and substance abuse had cumulative effects and lead to later significant mental and substance use disorders for children. Moreover, children whose parents engaged in drug use, or experienced mental health concerns like depression were found more likely to physically abuse their children throughout childhood (Dubowitz, et al., 2011). All these findings reinforce the need for interventions and preventions to reducing the long-term negative effects of trauma from ACEs.

Association Between Number of ACEs and Suicidal Behavior

Without intervention, youth who experienced child abuse and/or neglect or any ACE are more likely to have lifelong impairments that negatively impact future social, occupational, and even life expectancy outcomes (WHO, 2018; WHO, 2019; Gilbert et al., 2015). The original ACEs report found the experience of one ACE increased the risk of attempting suicide 2- to 5-fold (Dube, et al., 2001). The original ACEs report found that persons who reported three ACEs were over six times as likely to have attempted suicide (AOR = 6.6) (Felitti, et al., 1998). However, the risk of suicide attempt nearly doubled for persons who reported four or more ACEs (AOR = 12.2). Dong, et al. (2003 & 2004) found that about two thirds of participants from the original study reported experiencing one ACE. However, 80% to 90% of these participants were 2 to 17.7 times more likely to experience two or more ACEs. Moreover, specific types of ACEs were shown to have different levels of negative impact and to lead different negative outcomes (Felitti, et al., 1998; Campbell, Walker, & Egede, 2016). A recent meta-analysis of ACEs literature found participants reporting four or more ACEs as compared to participants who reported no ACEs, were over four times (OR = 4.40) as likely to have depression and 30 times (OR = 30.14) as likely to have attempted suicide in adulthood (Hughes, et al., 2017). These findings show that level of traumatic impact differs by the number of ACEs, however few studies have explored whether certain types of ACEs are frequently experienced in tandem. For example, the original ACEs study found psychological abuse to have occurred alongside physical abuse in over 50% of cases

(Felitti, 1998). This suggests that ACEs may be experienced in clusters, but further study is needed to tease out this phenomenon.

Role of Hopelessness in ACEs and Suicidality

Research from multiple fields have long-established the association between clinical factors and suicidality, with depression having the strongest link (Waldrop et al., 2007; Oquendo, et al., 2005; Asarnow, et al., 2011; Mann, et al., 1999; Brent et al., 2002). For example, early childhood traumatic experiences were strongly correlated with depressive episode onset in adulthood (O'Donnell, et al., 2004; Heim, et al., 2008; Hornung & Heim, 2014; Cattaneo, et al., 2015). In this literature, the association between trauma and suicidal behavior as specifically mediated by depression was a common assumption by researchers. Yet, to date, few studies have documented a pathway linking ACEs to suicidal behaviors through depression.

In fact, clinical symptomatology from depression alone, was shown not to be a causal determinate of suicide attempt in adolescent populations (Oquendo et al., 2005; Oquendo, et al., 2003). That is, many of these studies noted that close to 80% of reported depression cases did not lead to suicidal behavior (Brent, et al., 1988). Rather, the cognitive factor of hopelessness was found to mediate the pathway to between depression and suicidal behavior (Thompson, et al., 2005). This finding is important because it suggests that unless depression is accompanied by hopelessness, depression alone would not lead to suicidal behavior. This finding has major implications for the study of the ACEs to suicidal behavior pathway. Furthermore, it suggests that the pathway from ACEs to suicidal behavior is mediated not be depression generally but by hopelessness.

It is likely that the combination of prolonged psychological distress from relational and/or environmental trauma(s) such as ACEs, increases the risk for hopelessness which places the youth at higher risk for suicidal behaviors (Klonsky & May, 2015; Sullivan, et al. 2015; Heim, et al., 2008). Hopelessness theory, though not the focus of this research, provides a useful definition of hopelessness that matches the models for the Three-Step Theory of suicide progression that will be utilized throughout this paper. Abramson, Metalsky, & Alloy, (1989) defined hopelessness as "negative expectations about the occurrence of highly valued outcomes (a negative outcome expectancy), and expectations of helplessness about changing the likelihood of occurrence of these outcomes (a helpless expectancy)." Much research has found hopelessness to consistently predict the occurrence of suicidal ideation and attempts in in adolescence and young adulthood (Miranda, Valderrama, et al., 2013; Miranda, Tsypes, et al., 2013; Horwitz, et al., 2017; Huen, et al., 2015). However, few studies focus on the relationship between hopelessness and ACEs as they relate to suicidal behavior in African Americans or adolescents. Therefore, the current study will examine the role of hopelessness in the prediction of suicidal behavior for youth who have experienced ACEs.

Protective Factors and the ACEs to Suicidal Behavior Association

Experiences of trauma in childhood were shown to affect various mental health, and physical health outcomes with suicide as one of many possible negative outcomes (National Center for Injury Prevention and Control - CDC, 2019). However, roughly 50% of children with reported abusive experiences in their families or households did not

have symptoms of trauma or depression in adolescence or adulthood (Bonanno, 2004). Taken together, results from these studies allude to the possibility that other factors may be involved in the transition from ACEs to hopelessness to suicidal behavior. For example, trauma such as that from ACEs, may set adolescents on a trajectory toward lower tolerance for hopelessness, placing them at higher risk for engagement in suicidal behavior. Conversely, these findings also suggest that other protective factors may be inhibiting the progression from ACEs trauma and hopelessness to suicidal behaviors.

Protective Factors for Youth Who Experience ACEs

Few ACE studies have focused on the impact of protective factors, especially for youth. However, since a dose-response relationship was found between the number of experienced traumas and lower well-being for adolescents, lack of intervention or prevention is likely to lead to lower quality of life and poorer long-term health outcomes for most youth such as depression (Youssef, et al., 2017; Moore & Ramirez, 2016). Yet not all youth react similarly to adversity, with some youth showing resilience and positive adaptation. Many protective factors were shown to partially mediate the trauma to maladaptation relationship. Specifically, living in a violence-free neighborhood, attending a violence-free school, and supportive supervision of friends and activities by a parent and community (Moore & Ramirez, 2016). Each of these protective factors support essential areas of normative development by providing resources like a safe environment for maturation and connection to people who promote healthy development. These resources are also present in many religious systems. Thus, although much of the ACEs research has focused on the developmental deficits this study seeks to examine the

role of protective factors that foster resilience to the deleterious effects of adverse events (Moore, & Ramirez, 2016).

Religious Participation as a Protective Factor

Religiosity has consistently been found to act in a protective manner leading to improved mental health, physical well-being, and overall lifespan (Chida, et al., 2009; Milstein, et al., 2019; Hill, et al., 2018). More specifically, religious participation was found to promote the positive well-being of people at all ages through the provision of, positive cognitive structuring, collective socialization and to generally increase adolescent well-being. Hill et al., (2018) found persons who engaged of religious activities once or more per week had their risk for all-cause mortality reduced 24% relative to persons who never participated. Moreover, the reduced mortality persisted over and above factors of age, gender, marital status, locality size, education, and financial status (Hill, et al., 2018).

Although religious participation has many cultural definitions, committed practice was found participation in religious activity to be foster a sense of self-agency through building a sense of cognitive competency or mastery over his or her environment, connection to life through embodiment of a set of ideals that give a purpose or sense of meaning to one's own life, connection or sense of belonging to a group with similar values and goals, structure for optimal living, hope for future reward following adherence to the groups' vision, values, and goals, and connection to the larger sense of humanity through enactment of the group's ideals for appropriate living. Religious participation also provides methods for coping with traumatic experiences like childhood adversity and

may be helpful in mitigating the use of maladaptive coping techniques that lead to harmful health outcomes like suicidal behavior.

In their work on the history of religiosity and spirituality in suicidology, Colucci and Martin (2008) discussed four major theories on the relationship between religious factors and suicidal behaviors. Colucci and Martin note that in the 100 plus years of work completed on this intersection, most studies fall within two categories. Most of this research has defined religiosity either through religious affiliation alone or through one or more religious attendance factors including faith community involvement, commitment to faith beliefs (orthodoxy), and salience of intrinsic religious/spiritual values or practices. These religious attendance factors were shown to reduce all forms of suicidal behavior. However, for high school students, orthodoxy was shown to be the most predictive buffer against future engagement in suicidal behaviors.

Religious participation allows those who engage to adhere to collective social norms that provide a set of boundaries by which to live. Those who reported strong commitment to their faith beliefs were more likely to use and benefit from using religious coping techniques (Koenig, 2015). Engaging in religious practices and commitment to a faith was associated with longer lifespan and healthier living such as eating higher amounts of fruits and vegetables (Koenig, 2015). Religious participation may be a potentially cost-efficient method by which many adolescents can participate in youth development to gain a sense of purpose, meaning in life, and charitable service. All these things serve to foster posttraumatic growth, which helps increase the threshold for pain, adoption of new positive coping strategies, and build resilience.

ACE as a Typology

A more recent concern in the ACE literature has been the need to transition from the more simplistic counting of ACEs toward more sophisticated understandings of ACE clustering. The original ACE study identified a set of eight to 10 experiences that could be counted separately. Numerous subsequently studies followed this format of identifying ACEs risk and the associated dose-like response of negative health outcomes. Yet many of these studies were conducted without strong deference to the role of contextual factors like ethnicity or culture. Thus, the shift toward understanding ACEs by demographic has led to the need for a person-centered perspective focusing on population differences and the clustering of ACE types (Maguire-Jack, et al., 2019; Greeson, et al., 2014; Duke, et al., 2009).

Multiple studies showed differences in reported ACEs type and associated negative outcomes for predominantly Hispanic and African American samples versus predominantly white samples (Maguire-Jack, et al., 2019; Merrick, et al., 2018; Bruner, 2017; Duke, et al., 2009; Schilling, et al., 2007). Results showed differences in levels of hope, the number of ACE recurrences, the specific ACEs reported, and differences in associations in type of long-term negative mental health outcome (Lee & Chen, 2017; Roxburgh & MacArthur, 2014; Cronholm, et al., 2015; Schilling, et al., 2007). For example, Merrick, et al. (2018) found African American and Hispanic participants reported mean ACE scores [1.69 and 1.70 respectively] significantly higher than their White counterparts. These studies suggest that the number and type of ACEs may be influenced by the sociological group with which a person identifies. In an investigation

of ACE population differences, Maguire-Jack, et al. (2019) conducted a study utilizing both the counting method, and the more advanced latent-class analysis method. Results showed class configuration of ACE typology to differ by race/ethnicity. Their study went on to suggest that ACEs must be examined utilizing person-centered constructs that move beyond the original counting methodology in order to better capture these traumatic experiences for screening and interventive purposes.

Impact of ACE Typology by Race/Ethnicity

A case in point, that underscores the need to study ACEs as typologies, comes from recent ACEs research which showed minority persons (Persons of Color) in the United States to be at higher risk for ACEs than majority persons (Caucasian) due to the numerous combinations of historical and ecological risk factors that lead to chronic exposure to social and economic disadvantage (Lee & Chen, 2017). Gilbert and colleagues (2015) found African American participants more likely to report higher numbers of overall ACEs. Furthermore, in their 2017 article Lee and Chen suggest that African Americans were likely to report higher levels of household dysfunction than incidents of child abuse. These findings suggest there may be unique differences amongst which types of ACEs African Americans tend to experience. Although the original Kaiser report utilized a nationally representative sample; the focus was not on racial disparities and therefore, the impact of ACEs on chronically marginalized groups like African Americans was not explored in-depth (Brown, et al., 2010; Dube, et al., 2001). In fact, throughout subsequent early discussions of ACEs, race and ethnic concerns were largely ignored, with many studies favoring questions about sex

differences instead. However, recently more attention has been given to understanding childhood adversity by demographic, due to findings from complementary disciplines showing trauma reports to differ by racial/ethnic category. Therefore, to better explore the complexities of the African American ACE typology, a more nuanced person-centered approach beyond the original ACE-counting methodology is needed. In this study, I will attempt to examine ACEs using a latent-class analysis in order to answer some of these unanswered questions regarding ACEs in one specific population.

Three-Step Theory

The study of suicide has a long history within the psychological and sociological fields. Some of the earliest sociological reports from Durkheim reported a connection between the level of community engagement and suicide (Stack & Lester, 1991). More specifically, Durkheim found that people who identified as Protestant were more likely to have completed suicide versus people who identified as Catholic. Although numerous factors contributed to completed suicides, one strong difference highlighted between these communities was the level of community connection and support prevalent in the Catholic community juxtaposed with the importance of individualism promoted within the Protestant community. Most recently, Klonsky and Mayes proposed their Three-Step Theory which places a fresh understanding on the role of isolation versus community in the progression of suicidal behaviors. Three-Step Theory states that suicide attempts are the result of a three-step progression from suicidal ideation to engagement in action. Both suicidal ideation and attempts are believed to develop from the integration of four

components pain, hopelessness, connectedness, and suicide capacity (Klonsky & May 2015).

At step one the person is expected to experience psychological pain that becomes coupled with a feeling of hopelessness if there is a lack of intervention. Pain at this step is likely to be the result of experiencing trauma any one or more of the following experiences: interpersonal stress such as chaotic family dynamics or emotional neglect, mental health symptoms, a physical ailment such as from physical abuse, chronic societal pressure, a sudden or unexplained loss, or another similar stressor. Moreover, all forms of ACES have the potential to produce this psychological pain. Hopelessness is considered as the belief that the experienced pain is unbearable and will never resolve. Klonsky and May noted that both pain and hopelessness must be present to progress to suicidal ideation.

At the second step, the person evaluates whether the pain they are experiencing is stronger than their level of connectedness to people and environmental resources. Those who feel their pain is greater than their connections, are expected to have high levels of suicidal ideation. However, persons who report strong connections are expected to have moderate levels of suicidal ideation, and to not progress to suicidal attempts. An indirect/inverse relationship is expected between a person's level of involvement and severity of suicidal ideation. Thus, as the person reduces their involvement with people (family, friends, religious communities) and normative activities (i.e. jobs, hobbies, etc.), the severity of suicidal ideation is expected to increase (Wilson & Deane, 2010).

The third step in the progression toward suicide attempt is the consideration of lethal means. At this step, the person evaluates whether they have the means and the will to attempt suicide. This person is expected to have experienced a high level of pain that they believe will never go away, and to have isolated themselves from pleasurable relationships and activities. Due to the combination of all the aforementioned factors, the person who has access or seeks access to any form off lethal means is at high risk for attempting suicide. However, despite the comprehensiveness of Three-Step Theory, an overarching contextualizing framework is needed to understand how Three-Step Theory fits within the larger context of African American adolescent psychological development. Thus, the Phenomenological Variant of Ecological Systems Theory is useful for implementing a deeper examination of Three-Step Theory.

Phenomenological Variant Ecological Systems Theory

The Phenomenological Variant of Ecological Systems Theory (PVEST) might be considered the culmination of multiple shifts in the developmental field toward a contextual paradigm, and a societal shift toward recognition of diversity within mainstream culture. Spencer's PVEST is an ecological theory that builds on the work of many ecological theorists including Bronfenbrenner, Gump and Sutton-Smith, and Wright (Spencer, et al., 1997; Spencer, 1999; Swanson, et al., 2003). It was designed to consider the individualized interplay between person and environment that makes up the larger systematic process of human development. The goal of this theory is to examine the bidirectional nature of interacting developmental and contextualized components. It also highlights two important assumptions. First, development occurs across the lifespan.

Second, each cycle of development led to an outcome (positive or negative) that affects future development.

Spencer used the system of oppression that minority people experience as the foundation for understanding all of humanity's process of development. Spencer's model depicted contextually based risk- and protective- factors that influenced a developmental product of emergent identity. Her writings described emergent identity as the outcome of entrenched coping strategies (Spencer et al., 1997; Spencer, 1999; Swanson et al., 2003). Finally, these strategies became stabilized through repeated use (Spencer, 2003). The PVEST process occurs continuously throughout the lifespan.

Beyond identity, the PVEST framework is useful for understanding coping techniques that promote traumatic growth within chronically marginalized populations like the African American community. One common form of coping within this community is religious participation. Religious participation can therefore be conceptualized as a protective factor that is likely to positively impact African American adolescent development. In the current study, the Three-Step theory is utilized for guiding the direct exploration of adolescents' transition from ACEs to engagement in suicidal behavior, and moderation of that pathway by religious participation. However, due to the lack of validation of Three-Step with youth and African American populations, the PVEST will be used as an overarching framework for conceptualizing this process in adolescent development.

ACEs and Three-Step Theory

According to the Three-Step Theory, all forms of ACEs can lead to psychological stress/pain experienced as cognitive, emotional, and at times physical distress (Anda, et al., 2008). Persons who have experienced ACEs were found to be at risk for lifelong mental health disorders like depression and posttraumatic stress disorder, substance use disorders, and later suicidal behavior (Hahm, et al., 2010; Kalmakis & Chandler, 2014; Sharp, et al., 2012; Afifi, et al., 2008; Chung, et al., 2010; Waite & Shewokis, 2012). Approximately 13% of all youth in the United States representing 3.2 million young people between the ages of 12 to 17 experience depression (Geiger & Davis, 2019). This number is up by almost eight percent from 2007, with girls three times as likely as boys to experience depressive symptoms. The dysphoria accompanying depression often includes feelings of hopelessness and sadness, which if persistent, predict engagement in suicidal behavior. Psychological pain such as depression that is prolonged is predicted to lead to thoughts of hopelessness (Jacobs, et al., 2008). The debilitation from continued pain and hopelessness is thereby expected to lead to a diminished capacity to maintain healthy relationships and involvement in normal or positive activities.

Three-Step Theory and Coping Through Religious Participation

For the current study, religious participation is expected to buffer against engagement in maladaptive coping by buffering against the experience of hopelessness following ACEs (see figure I). Since every ACE is in fact a potentially traumatic experience (PTE), the event(s) is likely to lead to psychological pain if they occur one after another without enough time in between for recovery, and/or are chronic in nature

allowing no recovery time at all (Bonanno & Mancini, 2008). In both instances, the young person is expected to reach their threshold of pain tolerance and experience enduring psychological pain. The length of time spent with the pain leads to the sense of hopelessness, because the young person is unable to naturally recover psychologically from the severity of trauma experienced. However, even at this stage, the child's response to this experience of pain and hopelessness determines how well they will learn to cope with trauma. Their coping mechanism will determine whether they enter a recovery stage in which they eventually learn to increase their threshold for pain so they are not overwhelmed by the same levels of pain again, or remain at the same pain threshold and focus on trying to end the pain.

It is through this coping-strategy development-stage that religious participation is believed to act as promoter of positive cognitive-behavioral strategies. The strategies formulated through religious participation may thereby help youth learn different methods to combat the thoughts and feelings that make them feel hopeless. Religious strategies overtly and covertly work together to create more connections to people, institutions, and philosophies that make the youth feel needed and wanted. Feeling needed and wanted are direct antagonists to the isolation effects necessary to engage in suicidal ideation and attempts. Therefore, religious participation is expected to have a strong moderating effect for those who engage in it. (See figure 1.)

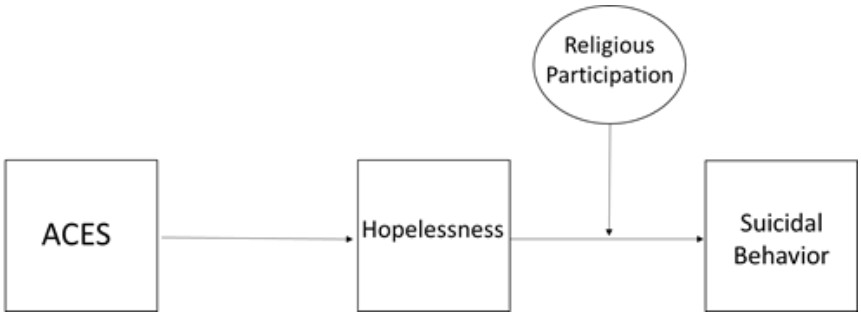

Figure 1. Model Examining the Moderation of Religious Participation on the Mediated ACES to Suicidal Behavior Association

Gaps in the Literature

Despite the literature showing strong links from ACEs and hopelessness to suicidal behavior, numerous gaps still exist that hinder the field's understanding of the impact of trauma and progression toward interventive measures. Steptoe, Marteau, Fonagy, and Abel, (2019) provided an outline of future research considerations for the study of ACEs suggesting stronger focus on the role of resilience/protective factors, causal relationships, and relative risk of ACEs for specific negative outcomes. This study will attempt to address these three concerns.

Additionally, ACEs studies have typically relied heavily on data from White middle-class populations. However, the question remains as to how ACEs are experienced in marginalized communities. In the U.S., all minority groups have been exposed to institutionalized ecological inequalities that have led to a wide variety of recidivistic health disparities. Yet historically, African Americans have experienced many of the severest forms of marginalization and environmental disparity, which has resulted in the proliferation of numerous chronic disorders and overall lowered quality of

life. A 2018 report found ACEs to be prevalent throughout the US population. Yet, ACEs concentrations were highest for persons from marginalized groups such as African Americans (Merrick, et al., 2018).

Furthermore, according to national child well-being scales African Americans in Wisconsin ranked lowest in the country for overall well-being compared to African Americans in any other state (WisKids Count Policy Brief, 2014). Over the last decade the Dane County and Madison areas received an influx of new residents who self-identified as African American. However, the residential neighborhoods for African Americans have remained isolated from economic infrastructure and much needed services. Conversely, on the same well-being index for American life, Caucasian Americans in Wisconsin were ranked as the 10th highest in the nation. Caucasian children in Wisconsin also ranked ahead of their peers of color on almost all other indexes including ranking first in the nation for high school graduation. Within Wisconsin itself, African American children ranked the lowest of any demographic on all indexes except preschool enrollment. Moreover, African American youth ranked worst in the nation for high school graduation, college education attainment, teen pregnancy, and two-parent families (WisKids Count Policy Brief, 2014). Due to the consistent experience of marginalization, this demographic is a prime target for encountering trauma from ACEs and hopelessness.

Another example of the continuing extreme disparity for African Americans in Wisconsin can be seen in the rate of youth arrests. The Wisconsin youth justice system worked to improve its number of arrests which peaked in 2002. By 2016, youth arrests

for violent crimes saw a reduction by 48 percent, and the state housed many less juveniles. Additionally, the rate of arrests decreased from 187 to 72 arrests per 1,000 youth aged 10 to 17. However, despite the significant decline in arrest rates and youth commitments, African American youth were found 8.2 times as likely as Caucasian peers to be committed to juvenile facilities in 2003 (Speckhard Pasque, 2018). That number increased to 15 times as likely to be committed by 2013. Therefore, from 2003 to 2013, racial and ethnic disparities within the youth justice department increased significantly (Speckhard Pasque, 2018). These statistics again underscore the high levels of ACE related trauma that chronically affects youth living in Dane County, Wisconsin. Therefore, this study will examine African American youth from Dane County, Wisconsin.

Also as noted above, ACEs were typically measured by counting up the number of traumatic experiences. However, the argument has been made that not all traumas impact people the same. This may mean that certain individual ACEs or certain combinations of ACEs, may lead to more negative outcomes. In addition, the original ACEs study found 10 common ACEs but did not examine whether these ACEs varied amongst different populations within their sample. Therefore, this study seeks to close that gap, by using a person-centered approach when examining ACEs amongst the African American population.

Moreover, although it is clear that there are population differences in the type of ACEs and the negative outcomes, there may also be population differences in the types of resilience methods needed to abate the negative impact of ACEs. Therefore, it is

necessary to examine the factors that foster resilience from a person-centered perspective so as to better understand the method by which resilience is built and maintained. One study that did, examined the role of hope in contrast with hopelessness as a mediator in the trauma to suicidal behaviors pathway for college-aged African Americans (Davidson, et al., 2010). The findings showed suicidal ideation to be reduced by the presence of hopeful thoughts and the lack of hopeful thoughts to be associated with the increased suicidal thoughts (Davidson, et al., 2010). Davidson suggests that for African Americans, the presence of hope may act as a buffer against engagement in suicidal ideation by reducing the psychological strain of perceived burdensomeness and thwarted belongingness.

Davidson went on to state that hope may be a greater buffer against suicide for African American populations than White populations. This assertion was further bolstered by subsequent studies showing the continued buffering effect of hope against suicidal ideation for African Americans (Hollingsworth, et al., 2016). From these studies it is clear that African Americans utilize hope to protect against hopelessness. Therefore, when examining resilience strategies to buffer against suicidal behavior it may be necessary to unpack the methods utilized within the African American community known to build or maintain hope such as religious participation (Griffin-Fennell & Williams, 2006).

Conversely, multiple studies have shown hopelessness to predict suicidal behavior in African American populations (Polanco-Roman & Miranda, 2013; Hirsch, et al., 2012). For example, in a diverse sample of college-aged students, trait hope as measured

by dispositional optimism, did not buffer against suicidal behavior for African American students (Hirsch, et al., 2012). Rather, for African American students, hopelessness remained a significant moderator of depression and suicidal behavior. This study showed youth with low levels of hopelessness were less likely to engage in suicidal behavior. These results were dissimilar to Hispanic and White participants from whom trait hope predicted lower levels of suicidal behavior. Therefore, since hopelessness was largely implicated in the progression toward suicidal behavior in African Americans, this study will also examine the role of hopelessness and its relation to ACEs and suicidal behavior.

The Current Study

This study focuses on the relationship between trauma as defined by ACEs and suicidal behavior through the mediating factor of hopelessness for African American youth. The traumatic stress experienced during adolescence from ACEs is hypothesized to increase the likelihood of suicidal ideation and attempts. Furthermore, this study attempts to better understand the effects of a common cultural practice within this highly marginalized group (religious participation) on the ACEs to suicidal behavior relationship.

Research Questions and Hypotheses

Question 1

Is the relationship between ACEs typologies and suicidal ideation and suicidal attempts mediated by hopelessness?

Hypothesis 1

The association between ACEs and suicidal ideation and attempts will be mediated by hopelessness.

Question 2

Does the association between hopelessness and suicidal behaviors vary by religious participation?

Hypothesis 2

Religious participation is predicted to weaken the association between hopelessness and suicidal behaviors such that youth who engage in more religious activities are expected to deviate from the three-step pathway more than less religious youth.

CHAPTER II

METHODS

Participants

The current study included youth from the 2015 Dane County Youth Assessment (Dane County Youth Commission), a study of contextual influences on adolescent outcomes (N = 705). The sample originated from a county-wide survey of students from grades seven through 12 from 34 schools or school districts in Dane County, Wisconsin. A total of 18,670 students participated in the original survey. The original survey included students from the following ethnic backgrounds 66.4% European American, 9.2% Latinx (Hispanic), 6.8% Multi-racial, 3.8% Asian, 2.0% Hmong, 0.7% Middle Eastern/Arab American, 0.6% Native American, or 1.1% Other. The current sample was filtered for youth who self-identified as African American/Black. African American students comprised 9.4% of the total sample and 5.1% of the high school only sample (see table 1 for demographic characteristics and descriptive statistics for the complete sample). Self-report data for the final sample was collected from 9th- through 12th-grade students with ages ranging from 14 to 18 (M = 2.84) and was 54% male (N = 381).

Procedures

The data for this study were collected by the Dane County Youth Commission (DCYC), a cross-sectional computer-administered survey. The DCYC organization works collaboratively with schools and community agencies to confront the topic of

adolescent health. In smaller schools a census survey strategy was used and in larger schools random sampling was used for one metropolitan area. To adjust for unequal probabilities in participation on surveys among all the schools, post survey weights were implemented. Surveys were completed electronically at each school during the fall of 2014. Parents were informed about the survey prior to distribution to students. Consent for voluntary participation was obtained from parents and assent was obtained from adolescents. The de-identified survey data were obtained by the Project Investigator.

Measures

Adverse Childhood Experiences

Adverse Childhood Experiences were measured using eight items chosen as indicators to identify the classes or typologies in the latent class analysis. All items represented adolescent exposure to parental abuse and conflictual family dynamics before the age of 18 from the DCYA questionnaire. Physical abuse was represented with the item "My parent has hit me leaving bruises, marks or any kind of injury." Witnessing intimate partner violence was represented with the item "My parents physically fight each other." Living with a parent that abused substances was represented with the items, "My parent uses marijuana at least once a week" and "My parent gets drunk at least once a week." Living with a parent with mental illness was represented with the item "My parent is depressed or has a mental health problem." Living with a caregiver that imprisonment was represented by the item "My parent has been in prison or jail." Responses for these items included "yes" (1), "no" (2), and "Don't know" (3). Neglect was represented by items measuring emotional caretaking behavior. Items were reversed

scored to capture the lack of caretaking behavior. Neglect was represented with the items, "My parents: 'Monitor my school progress' and 'Talk with me about things that bother me.'" Responses for neglect items included "Always" (1), "Often" (2), "Sometimes" (3), and "Never" (4). All items were recoded as dichotomous, with "Never" and "Sometimes" as "one" and all other responses as "zero."

Hopelessness

Hopelessness was measured using one item, "During the past 12 months, did you ever feel so sad or hopeless almost every day for at least two weeks that you stopped doing some usual activities?" This item was constructed as a dichotomous item of "no" (0) and "yes" (1) to examine the extent to which the person experienced hopelessness that impaired functioning.

Suicidal Behavior

Suicidal behavior was defined as suicidal ideation and suicide attempts. Suicidal ideation was measured with the item "During the past 12 months, have you thought about killing yourself?" Responses for this item were recorded on a 4-point Likert scale "no" (1), "yes but rarely" (2), "yes some of the time" (3), "yes almost all the time" (4). Suicide attempt was measured with the item "during the past 12 months, have you attempted to kill yourself?" Responses for suicide attempt were on a 3-point Likert scale of "no" (1), "yes one time" (2), and "yes more than one time" (3). Both Suicide attempt and Suicidal ideation were recoded as dichotomous variables, with "no" equaling "zero" and any report of suicidal activity equaling "one."

Religious Participation

Religious participation was measured with the item "How many days a week do you participate in the following activities before or after school or on the weekend: Religious or spiritual activities?" This item assessed the level of participation in religious or spiritual activities over the course of a week. Responses were originally recorded on a 5-point Likert scale with 1 as "never involved in this activity," 2 as "less than one day per week," 3 as "1-2 days," 4 as "3-4 days," and 5 as "5 or more days." Religious participation was recoded as dichotomous, with "never/no" as "0," and "Less than 1 day" through "1-2 days" as "1 = yes to participation." Youth with responses of 3-4 days or more were excluded to allow for closer examination of a more normative range of participation.

Analysis Plan

An exploratory latent class analysis (LCA) was conducted as the first step and all analyses were performed with Mplus Version 8.1 (Muthen & Muthen, 1998–2018). The LCA was conducted to identify the lowest number of classes (or groups) of participants with similar patterns of behaviors that described an observed relationship among the ACES indicators. To complete this statistical technique homogeneous classes of participants were identified, according to their item scores. Then for each participant, the probability of belonging to a specific class was calculated. Participants were assigned into specific classes. Lastly, the probability of a positive item score was calculated for all items included in the analysis.

Next to obtain the best model fit, a series of models was estimated by stepwise addition of classes, until an optimal class-solution was achieved. In order to test the stability of each model, different sets of starting values were used to prevent solutions based on a local maximum in iteration processes. After a stable model was identified, values of the Sample-Size Adjusted Bayesian Information Criterion (SSABIC; Kass & Wasserman, 1995) and the Vuong–Lo–Mendell–Rubin likelihood ratio test (LRT) for each model were compared. Each successive model also showed significant improvement of model fit in comparison to the prior model in the significance level of the (LRT), with the exception of the model with five classes (Golden, 2000). The model with lowest SSABIC and significant LRT was chosen.

Each group will be named according to the observed ACEs response pattern. Youth in group 1 (HIGHACES) tended to report multiple ACEs but fewer neglect related items. Youth in group 2 (LOWACES) tended to report few or no ACEs. Lastly youth in group 3 (NEGLECT) tended to report the neglect related items only. Then suicidal behavior was examined across the groups. All groups were significantly different from one another, confirming that a 3-class solution was the best fit for this population.

The Three-Step model hypothesis was then tested using mediational testing of indirect effects. To complete this step, dummy coding of the classes was conducted, with the largest group typically specified as the reference group. A mediator is then selected along with outcome variables. The regression and indirect effects analyses used the weighted least squares estimator in Mplus (WLSMV) which uses a uses a probit link function when outcome variables are ordered-categorical.

To test for moderation effects, I did multigroup modeling to compare models with regression paths freely estimated to models where those same paths were constrained to be equal across high and low religious activity. Finally, a Chi-square ($\chi 2$) difference test will be conducted to test for moderation. The $\chi 2$ difference test measures differences between the $\chi 2$ values across two models relative to the difference in degrees of freedom. A statistically significant increase in $\chi 2$ values (per the difference in degrees of freedom) would indicate the need for multiple models. In a $\chi 2$ difference test, one model is given fixed parameters and the second model has its parameters freed to test whether this "larger" model fits the data better than the "smaller" fixed parameter model. If the $\chi 2$ diff-value is insignificant the two models fit equally well and if that is the case, then there is no evidence for moderation. If the chi-square difference test is statistically significant, then follow-up tests are conducted to identify which path coefficient vary across groups. Because this analysis used categorical outcomes variables, the Mplus DIFFTEST procedure was used for the moderator tests which adjusts chi-square values.

Structural equation modeling (SEM) was then used to examine the indirect effects of ACEs to suicidal ideation and suicidal attempt via hopelessness. To assess the significance of indirect effects, bias-corrected bootstrapping confidence intervals (CIs) were estimated using the recommended 5,000 iterations. This approach was shown to produce greater power and more precise CIs than percentile bootstrapped CIs (Preacher, Rucker, & Hayes, 2007). All indirect effects were considered significant when the 95% CI did not include zero. When using the WLSMV estimator, missing data are handled via pair-wise present analyses.

CHAPTER III

RESULTS

Descriptive Statistics

Tables 1 & 2 present the descriptive statistics for the variables of interest in the current study. Students in this sample were all African American and predominantly from Madison County schools, therefore the weighting by county and nesting in schools was not necessary. All variables were correlated with one another using non-parametric correlations. The one exception showed religious activity to be unrelated with hopelessness.

Identification of the Classes via Latent Class Analysis

The values of BIC and significance levels of LRT of a 2- to a 4-class-solution derived from exploratory LCA are presented in Table 3. While the fit statistics suggested that a 4-class model was superior to a 3-class model, a 4-class model resulted in one group that was < 5% of the overall sample which is not advised for subsequent analyses (Lanza & Rhoades, 2013). I attempted to fit 5 and 6 class models; however, those models would not converge even with very high numbers of random start values. As such, I concluded that a 3-class solution was the best model for these data. Class 2 (Low ACES) comprised of approximately 48% of the sample, Class 3 (Neglect ACES) comprised ~41%, and Class 1 (High ACES) comprised ~9%. Individuals in the High ACES group (Class 1) had the highest probability to score on all or most of the Abuse

and Household Dysfunction items. The difference between the Neglect ACES group (Class 3) and the Low ACES group (Class 2) was a higher likelihood of reporting mostly Neglect-related ACEs (i.e. My parents talk with me about thing things that bother me) in the Neglect ACES group. Individuals from the Low ACES group (Class 2) had a higher likelihood to score low on all items. The percentage of individuals correctly classified were 97% for High ACES, 84% for Low ACES, and 90% for Neglect ACES.

To consider if the classes varied (and to validate the classes with respect to suicidal behavior. I compared mean values of suicidal thoughts and attempts across classes. When compared using a Chi-Square test across suicidal ideation High ACES was significantly different from Low ACES ($p < .001$) and Class 3 ($p = .002$). Similarly, Low ACES was significantly different from Neglect ACES for suicidal ideation ($p < .001$). When compared using a Chi-Square test across suicidal attempts High ACES was significantly different from Low ACES ($p < .001$) and Neglect ACES ($p = .003$). Similarly, Low ACES was significantly different from Neglect ACES across suicide attempts ($p < .001$). These results confirmed the 3-class solution for the sample.

Indirect Pathways and Moderation

The Three-Step model hypothesis was evaluated with mediational testing using indirect effects in Mplus. Low ACES was specified as the reference group for dummy coding. Hopelessness was specified as the mediator, and suicidal ideation and suicide attempt items were the outcome variables. Structural equation modeling approaches to mediation involve testing for the statistical significance of indirect effects. The presence of a statistically significant indirect effect is evidence for mediation. Partial mediation

includes a significant indirect and direct association, while full mediation involves a significant indirect association with a nonsignificant direct association (Iacobucci, et al., 2007).

The results for the indirect effect of the Neglect ACES class to suicidal attempt association showed full mediation as the indirect association via hopelessness was statistically significant (β = .093, *p* = .059, CI [.028, .191]) and the direct association as not. Neglect ACES to suicidal ideation showed full mediation of the direct effect by hopelessness (β = .148, *p* = .031, CI [.043, .263]). Results for the High ACES to suicidal attempt association showed partial mediation as the indirect association was significant (β = .253, *p* = .010, CI [.112, .432]) as was the direct association. Lastly, High ACES to suicidal ideation showed partial mediation as well (β = .399, *p* = .001, CI [.192, .571]). These results showed the mediation pathway to be dependent on the type of ACEs suggesting the three-step model to be supported. (See Appendix table 4.)

CHAPTER IV

DISCUSSION

In the U.S. the connection between adverse childhood experiences and suicidal behavior was well established, however little was known about this association for African Americans from a person-centered perspective. Second, no studies had examined potential population-specific protective factors that may vary this association. Therefore, this study focused on three objectives. The first objective was the discovery of ACE typology for African American youth using a latent class analysis. The second objective was to test the validity of a theorized pathway from the ACE typology to hopelessness and the subsequent negative outcomes of suicidal ideation and attempt. The third objective was to examine the effect of a potential protective factor on these pathways. Results from the LCA suggested three ACEs typologies: Low ACES, Neglect ACES, and High ACES. Persons in the Low ACES class tended to report few or no ACEs. Students in the Neglect class tended to report primarily Neglect-related ACEs and a moderate number of ACEs overall. Finally, persons in the High ACES class, had high probabilities of indicating experiencing most ACEs. Overall childhood trauma positively related to adolescent suicidal behavior such that youth who reported ACEs were more likely to also report suicidal ideation and/or attempts. Furthermore, youth who reported Neglect related ACEs and suicidal behavior were likely to report hopelessness. Similarly, youth in the High ACEs class also were likely to report hopelessness and

suicidal behavior. However, the association between ACEs and suicidal behavior was not fully explained by the presence of hopelessness for youth who were classified in the High ACEs class. Lastly, the ACE typology to suicidal behavior associations were examined for differences based on general religious participation. However, there were no significant differences in the strength of the associations between ACE typology and suicidal behavior for youth who reported engagement in general religious activity when compared with youth who reported no engagement in general religious activity.

ACEs Class Typologies versus ACEs Score

The percentage of students indicating suicidal thoughts and attempts varied across the classes, indicating an association between ACEs classification and risk for suicidal behaviors. Typically, ACEs studies have focused on the overall additive score of ACEs a person reports. This score is beneficial in that it helps clinicians and mandated reporters to identify risk for an ACE. Yet it also lacks the ability to help determine the likelihood of survivors reporting one ACE over another given their population demographics and equalizes individuals who may experience the same number of ACEs but in varying degrees of severity. Therefore, a person-centered approach using a latent class analysis was employed to identify types of ACEs youth and to consider if different typologies were differentially linked to suicidal behavior. The first findings suggested three groups with respect to ACEs that likely varied in terms of their risk for suicidal behaviors.

ACEs Classes and Three-Step Theory Validity

The ACEs classes were then used to test the validity of the Three-Step Model with an African American population, which had not been previously explored. Results showed the first hypothesis to be supported, such that the ACEs to suicidal behavior association was mediated by hopelessness. More specifically, the Neglect ACES to suicidal behavior associations were fully mediated by the presence of hopelessness. Thus, students who experienced neglect during childhood were likely to experience hopelessness which led to engagement in suicidal ideation and attempts.

The High ACES to suicidal behavior association was partially mediated by hopelessness. Therefore, students who reported multiple ACEs also experienced some hopelessness that led to suicidal behavior. However, distress from the high number of ACEs also directly related to suicidal behavior engagement. This means there may be other moderators or mediators implicated in this pathway or that extreme experiences related to ACEs may be linked to suicidal behavior for other reasons. Therefore, neglect may be a more minor form of ACEs and as such its relationship to suicidal behavior was fully mediated by hopelessness. It was also possible that the Three-Step model worked best for explaining the path from moderate and low intensity psychological distress (trauma) to suicidal behavior. Furthermore, this relationship may be especially salient for youth who identify as African American and/or represent a highly marginalized group such as with the youth in this sample. The youth in this sample resided in Dane County, Wisconsin, currently known for having high levels of racial disparity, with African Americans representing a very small minority who experiences the worst effects (COWS,

2017; Godar, 2015). These youth were likely to reside in neighborhoods that offered few stable job opportunities, and poorer housing. They were also more likely to witness consistent trauma from violence, crime, and the forceful interjection of the justice department (Dresser, et al., 2018). In cases of high intensity psychological distress (trauma), hopelessness along with other moderators or mediators combine to provide a strong pathway to suicidal behaviors. The importance of differentiating between the types of ACEs appears to be that the Three-Step model has different applicability for the different types of ACEs. These findings have intervention implications, such that when treating youth experiencing distress from neglect-related ACEs, it may be beneficial to focus significant attention on screening and treating symptoms of hopelessness.

Religious Participation as a Moderator

Once the validity of the Three-Step process with this sample was confirmed, the second conditional hypothesis was tested. The second hypothesis stated that the pathway from ACEs to suicidal behavior through hopelessness would be weakened by religious participation. The second hypothesis was not supported. Results suggested no moderation effects were found by religious activity. This means that hopelessness from ACEs was not offset by engagement in religious activity. The implication of this finding is that African American students who experience ACEs and hopelessness remain at high risk for suicidal behavior irrespective of engagement in religious participation. This means that religious participation may not be protective against engagement in suicidal behaviors. However, another possibility for the lack of significance may have been due to measurement concerns. (See limitations.)

The students from this sample all resided in or near the Madison, Wisconsin area of the United States. According to the Pew Research Center, approximately 75% of adults reported some form of religious affiliation. The overwhelming majority of these people reported some form of Christian denomination (71% total population). In Wisconsin, African Americans reported some of the highest levels of belief in God, the Bible (or other religious texts), prayer and meditation, and the afterlife throughout the state population (Pew Research Center, 2020). African Americans there also reported the highest frequency of church attendance and about 75% rated religion as "very important." Thus, due to its high prevalence and known positive outcomes within the African American population in Dane County, religious participation was explored as a potential protective factor against the maladaptive response of suicidal behavior.

However, religious participation was found to not have a direct impact on the association amongst ACEs hopelessness and suicidal behaviors. The implication of this finding is that religious attendance may not be protective against the progression from ACEs to suicidal behavior for African American youth. This finding is surprising because religious participation is a deeply embedded practice within the African American culture in Madison, Wisconsin. As stated above, these practices range in purpose from serving as a popular cultural ritual with little personal value, to a psychological coping mechanism during times of emotional or psychological distress. According to a Pew survey of religious participation, approximately 69% of African Americans in the United States reported feeling spiritual peace and wellbeing at least once a week (Pew Research Center, 2020). Thus, with such high levels of ACE related

trauma, religious participation was expected to be a frequently used coping mechanism with a wide reach within the community.

However, this study's results were in line with previous studies showing conflicting results from religious engagement. Chatters et al. (2011) found that for African American and Black Caribbean people, interaction with church members was positively associated with suicidal attempts. Yet, the same study also reported increased subjective closeness to church members to decrease suicidal ideation. Similarly, another study examining four dimensions of religious involvement and suicidality found religious identification, along with looking to God for guidance, strength, and comfort was associated with lower suicidal ideation and/or attempts (Taylor, et al., 2011). Yet, reading religious materials and stating that prayer was important in stressful situations was associated with higher suicidal ideation for African Americans. Therefore, many factors may have impacted the use or effect of religious coping among this sample of youth, including the type of religious activities available to this community, the age and emotional development of the participants, or even the wording of the survey. These limitations are discussed further below.

Limitations

There were a few limitations with this study. First, there this study utilized secondary data and therefore there were some measurement concerns. Specifically, the item addressing religious participation may not have been sensitive enough to capture a wider range of normative participation and therefore results were limited to fewer students. Second, this item did not clarify the differences in types of spiritual and/or

religious participation. Therefore, it was not possible to note which types of participation fostered the increased hopelessness observed in this sample. Third, the item for hopelessness was a single item and potentially also captured depression symptomatology. Therefore, it could not be considered a direct measure of the effect of hopelessness alone. This lack of clarity makes it unclear whether these findings would replicate with more comprehensive measures. However, the inclusion of depressive symptomatology in the hopelessness item likely lent a more accurate contextual lens to reporters which helped students report their experiences more precisely. Future research would benefit from the inclusion of survey items that utilize Diagnostic and Statistical Manual of Mental Disorders or International Classification of Diseases phraseology when discussing mental health constructs. Also, future research will benefit from the addition of items that follow validated frequency categories for religious participation and socioeconomic status.

Fourth, this survey only included self-report from adolescents. Inclusion of parent, teacher or clinician report may have helped add validity to students' reports of ACEs or suicidal behavior. Students from this survey lived in areas that had high amounts of racial, social, and economic disparity which is known to contribute to the severity of ACEs. However, no provision was made in this survey to capture that form of contextual information. Thus, future research utilizing this survey would benefit from the addition of parent demographics to lend accuracy to child reports. Fifth, this study was cross-sectional and did not allow for predictive measurement of ACEs to suicidal behavior. Future studies would likely benefit from surveys that allow for measurement of

the same students over multiple time points to track whether these associations are predictive or concurrent.

Future Directions

This study found African American youth residing in Dane County, Wisconsin were likely to experience high levels of social and economic marginalization leaving them at high risk for experiencing ACEs and hopelessness. Moreover, the experiences of ACEs and hopelessness placed these youth at high risk for engaging in suicidal behavior. However, future studies will need to examine the various types of religious activity and the levels of participation that are considered normative for suicidal and non-suicidal populations to better determine this association. Future studies should also examine this relationship over a protracted period of time with more precise items to capture a more nuanced understanding of the impact of religious participation on this pathway. Screeners for ACEs and hopelessness can be added into existing school surveys like the DCYA that target multiple populations. For future ACEs study, items on the DCYA survey should be tailored to match current ACE measures. For clarity, surveys should use DSM diagnostic language for symptom related questions and ACEs language for trauma related questions. These changes will allow further examination of Three-Step constructs in other populations and allow fuller understanding about the pathways to suicidal behaviors.

Implications

Due to environmental factors, African American youth are poised to face many challenges which place them at high risk for experiencing trauma during childhood

(ACEs) and hopelessness which can lead to suicidal behavior. This study found that African American youth who experience ACEs were likely to fit within one of three ACE-typologies- low ACEs, neglect-related ACEs, and high ACEs. Moreover, the relationship between the neglect-related ACE typology and suicidal behavior was fully mediated by hopelessness, suggesting that it may be a less traumatic form of ACEs that only progresses to suicidal behavior with the presence of hopelessness. This finding has important theoretical implications for the Three-Step ideation to action model. Specifically, the Three-Step model may be most useful for explaining moderate and low intensity trauma to suicidal behavior associations.

Persons working in any health and/or education field should be trained to screen African American adolescents for both ACEs and hopelessness if they report depressive symptoms due to the increased likelihood of suicidal behavior. Furthermore, African American youth may be prone to the experiencing neglect-related abuse differently than physical abuse or family chaos. Therefore, screening tools will need to be sensitized to these types of ACEs in addition to the number of ACEs (Screening Tools, Substance Abuse and Mental Health Services Administration [SAMHSA], 2018). African American youth who experience multiple ACEs especially physical abuse or family chaos related ones, may be at highest risk for suicidal behavior, even without reporting hopelessness. Youth who have experienced ACEs may need extra services like wrap-around care to provide support missing from their home environment (Swenson, Schaeffer, Henggeler, Faldowski, & Mayhew, 2010; WHO, 2017). To be able to provide interventive services to struggling youth, screening for ACEs will likely need to be

conducted regularly throughout childhood before the distress from ACE-related trauma progresses to suicidal behavior. Clinicians, healthcare workers, teachers, and any other mandated reporter should be aware of the behaviors in these youth and provide extra monitoring.

Conclusion

In conclusion, suicidal behavior amongst African American youth is on the rise. Childhood trauma from ACEs was found to lead to hopelessness and suicidal ideation and suicide attempts, however this association had not been well studied within the African American community. Therefore, a person-centered perspective was used to examine the applicability of the ideation-to-action (Three-Step Suicide) framework. A latent-class analysis of ACEs revealed three classes of ACEs clusters for African American youth. African American youth were classified into a Low ACEs class with one ACE or less, a Neglect-related ACEs class, and a High ACEs class representing a combination of multiple family chaos and physical abuse ACEs. Next these classes were regressed onto hopelessness and suicidal behavior. Regression results showed hopelessness to fully mediate the associations between the Neglect-ACEs class and suicidal ideation and attempts. Further, regression analyses showed partial mediation of the High ACEs class and suicidal behavior associations by hopelessness. This study then examined the effect of a known protective factor (religious participation) within the African American community on these mediations in order to better understand the effect of protective factors on these pathways. No group differences were found between youth who reported religious participation and youth who did not. All findings from this study

underscored the importance of assessing all African American youth who report ACEs and hopelessness due to their association with suicidal behaviors.

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APPENDIX A

DATA TABLES

Table 1. Non-parametric Correlations of ACEs

	RA	NA	NE	Pri	AP	Dri	Dru	Dom	MHP	Hop	SI	SA
RA		*-.21	-.11	-.15	-.01	-.08	-.19	-.05	.02	-.11	-.15	-.19
NA			**.62	.11	.13	**.26	**.20	*.26	*.19	**.25	**.33	**.38
NE				.01	*.20	*.18	.13	.02	.01	*.19	**.29	*.29
Pri					**.52	**.60	**.68	**.70	**.44	**.28	.08	.08
AP						**.61	**.64	**.82	**.47	**.36	**.29	*.23
Dri							**.76	**.81	**.56	*.22	*.21	*.29
Dru								**.79	**.47	**.32	**.27	**.29
Dom									**.68	**.48	**.33	**.57
MHP										**.36	**.27	.17
Hop											**.59	**.46
SI												**.90
SA												

Note: Total N for each variable before weighting = 1622. Exception for RA N = 1362.
RA = Religious activity, NA = Neglect Academic, NE = Neglect Emotional, Pri = Prison, AP = Abuse Physical, Dri = Drinking, Dru = Drug use, Dom = Domestic Violence, MHP = Mental Health Parental, Hop = Hopeless, SI = Suicidal Ideation, SA = Suicidal Attempt. * = $p \leq .01$; ** = $p \leq .001$

Table 2. Class Probabilities across ACE Typologies

Items	Low ACES (48%) Class 2	Neglect ACES (41%) Class 1	High ACES (9%) Class 3	Total
1. Monitor my school progress		0.44	0.48**	0.28
2. Talk with me about things that bother me	0.1	0.79**	.057**	0.49
3. My parent has been in prison or jail	0.18*	0.21**	0.94**	0.27
4. My parent has hit me leaving bruises, marks or any kind of injury	0.04	0.09**	0.65**	0.13
5. My parent gets drunk at least once a week	0.01	0.07	0.68**	0.05
6. My parent uses marijuana at least once a week	0.03	0.07	0.85**	0.13
7. My parents physically fight with each other	0.01	0.01	0.47**	0.13
8. My parent is depressed or has a mental health issue that worries me	0.09	0.08*	0.55**	0.28

Note: Percentages were calculated per ACE. Total N includes frequency from the total sample. * = $p < .01$; ** = $p < .001$

Table 3. Univariate Proportions and Counts for Categorical Variables

Classes	Sample-Adjusted BIC	Entropy	Likelihood Ratio Test P-value
2	4649.561	0.900	<0.0001
3	4575.654	0.773	<0.0001
4	4523.402	0.818	<0.001

Note: Classes 5 and 6 were tested were unable to produce models.

Table 4. Mediation Pathways

ACEs Class	Effect	Suicide	β	p-value	CI Lower	CI Upper
High	Total	Attempt	.946	<.001	.606	1.287
High	Total	Ideation	.893	<.001	.558	1.220
High	Indirect	Attempt	.253	.010	.112	.432
High	Indirect	Ideation	.399	.001	.192	.571
Neglect	Total	Attempt	.322	.022	.085	.533
Neglect	Total	Ideation	.341	.005	.144	.544
Neglect	Indirect	Attempt	.093	.059	.028	.191
Neglect	Indirect	Ideation	.148	.031	.043	.263

Note: All ACEs classes are in comparison to the Low ACES class.

APPENDIX B

FIGURES

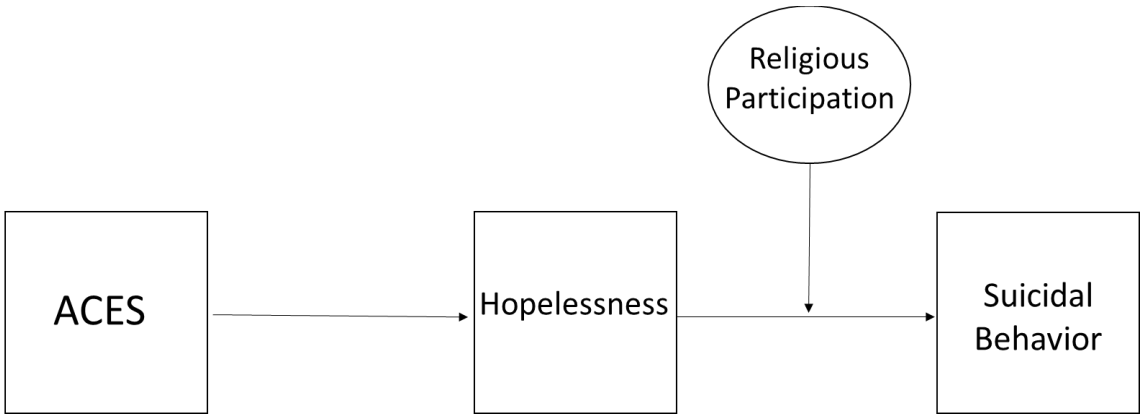

Figure 2. Model Examining the Moderation of Religious Participation on the Mediated ACES to Suicidal Behavior Association.